

## Wilmad NMR Tube Application Note

WG-5MM-ECONOMY-7



### Description

Wilmad-LabGlass Economy NMR Tubes are manufactured from borosilicate glass that meets the ASTM Type 1 Class B standard and recognized as N51A. Due to its nature, this glass has much less thermal-shock resistance than Class A glass used for our Precision Tubes. It may contain  $\text{Fe}_2\text{O}_3$  which is paramagnetic (1200 ppm) and has certain impact on

shimming quality depending on the magnetic field strength.

Economy tubes are recommended only for experiments with small organic molecule (Molecular Weight ~500) at ambient temperature only. The camber and concentricity listed in the product specification table is the upper limit value.

### Properties

MHz Rating:	100
Length (inch):	7
O.D. (mm):	4.94665 ± 0.01905
Wall Thickness (mm):	.43
Material	ASTM Type 1 Class B Borosilicate Glass
Impact on shimming quality by paramagnetic impurities <sup>1</sup>	Medium (>1200 ppm $\text{Fe}_2\text{O}_3$ )
Rapid cooling/heating	No
Max. working temperature	Ambient
Sample volume reproducibility <sup>2</sup>	10%
Averaged Sample Volume within Rf coil	125 $\mu\text{l}/\text{cm}$
Outer Diameter	4.947±0.019 mm
Cut-off wavelength	320 nm
Compatible with Small Volume Insert	No
Recommended Application	1D NMR experiments with small organic molecule (Molecular Weight <1500) below 600 MHz

Note 1: Impact on shimming quality varies upon magnetic field strength. Economy tube is recommended for 1D low field experiments.

Note 2: Sample volume reproducibility refers to the maximum volume fluctuation when filling different NMR tubes to the same sample height. This number correlates to the reproducibility of time domain signal amplitude between different runs.